



*Training Course:
Advanced Bearing Maintenance and Service:
Maximizing Performance and Reliability*

9 - 13 March 2025

Cairo (Egypt)

Holiday Inn & Suites Cairo Maadi, an IHG Hotel

Training Course: Advanced Bearing Maintenance and Service: Maximizing Performance and Reliability

Training Course code: SC1995 From: 9 - 13 March 2025 Venue: Cairo (Egypt) - Holiday Inn & Suites Cairo Maadi, an IHG Hotel Training Course Fees: 3575 € Euro

Introduction

Welcome to the Advanced Bearing Maintenance and Service training program. Bearings play a critical role in various industrial applications, ensuring smooth operation and minimizing downtime. This comprehensive program is designed to equip maintenance technicians, engineers, and professionals with the advanced knowledge and practical skills required to effectively maintain, and service bearings. Through a combination of theoretical learning and hands-on exercises, participants will gain a deeper understanding of bearing principles, advanced maintenance techniques, troubleshooting strategies, and performance analysis.

Objectives

Upon completion of this training program, participants will be able to:

1. Understand the principles of bearing operation and different types of bearings.
2. Demonstrate proficiency in bearing installation and removal techniques.
3. Identify common bearing failures and implement effective troubleshooting strategies.
4. Apply advanced maintenance practices to maximize bearing lifespan.
5. Develop and implement a comprehensive preventive maintenance plan for bearings.
6. Utilize advanced condition monitoring techniques to assess bearing health.
7. Analyze bearing performance data and make informed decisions based on analysis.
8. Implement best practices for bearing alignment, lubrication, and protection.
9. Understand the challenges associated with large-sized bearings and develop appropriate maintenance strategies.

Methodologies

The training program will employ a variety of methodologies to ensure a comprehensive learning experience:

1. Interactive Lectures: Engaging lectures will cover theoretical concepts, bearing principles, and advanced maintenance techniques.
2. Multimedia Presentations: Visual aids, videos, and multimedia materials will enhance understanding of complex topics and real-world applications.
3. Hands-on Exercises: Participants will have the opportunity to practice bearing installation, removal, troubleshooting, and advanced maintenance techniques under the guidance of experienced instructors.
4. Case Studies: Real-world examples and case studies will be used to illustrate common bearing failures, performance analysis, and the implementation of effective maintenance strategies.
5. Group Discussions: Participants will engage in group discussions to exchange knowledge, share experiences, and discuss best practices in bearing maintenance and service.
6. Practical Demonstrations: Demonstrations of advanced tools, equipment, and condition monitoring

techniques will enhance the participants' understanding of the topics covered.

Target Audience

This training program is designed for maintenance technicians, engineers, and professionals involved in the maintenance and servicing of bearings. It is ideal for individuals who already possess a foundational understanding of bearing maintenance and wish to deepen their knowledge of advanced techniques. This program is suitable for participants working in various industries such as manufacturing, power generation, automotive, aerospace, and heavy machinery.

Training program outline

Day 1: Bearing Fundamentals and Installation Techniques

- Introduction to bearings: types, design, and construction.
- Bearing terminology and nomenclature.
- Principles of bearing operation and load distribution.
- Bearing selection criteria for different applications.
- Advanced bearing installation methods: induction heating, hydraulic methods.
- Bearing removal techniques: mechanical and hydraulic methods.
- Hands-on exercises: advanced bearing installation and removal techniques.

Day 2: Bearing Failure Analysis and Troubleshooting Strategies

- Common bearing failures and their root causes.
- Bearing failure modes: fatigue, wear, misalignment, contamination, etc.
- Visual inspection techniques for bearing failure analysis.
- Advanced diagnostic tools for bearing health assessment.
- Vibration analysis and its role in bearing maintenance.
- Implementing advanced troubleshooting strategies.
- Hands-on exercises: analyzing failed bearings and developing troubleshooting plans.

Day 3: Advanced Maintenance Practices and Lubrication Techniques

- Lubrication principles and advanced lubrication techniques.
- Lubricant selection and compatibility considerations.
- Lubrication methods: manual, automatic, centralized systems.
- Lubrication intervals and quantity determination.
- Bearing sealing and protection methods: labyrinth seals, magnetic seals, etc.
- Hands-on exercises: advanced lubrication techniques and sealing methods.

Day 4: Condition Monitoring and Performance Analysis

- Introduction to condition monitoring techniques.
- Vibration analysis: data collection, analysis, and interpretation.
- Thermography and infrared analysis for bearing assessment.
- Oil analysis and its role in detecting bearing abnormalities.

- Advanced techniques for bearing performance analysis.
- Developing a comprehensive condition monitoring program.
- Case studies: utilizing condition monitoring tools for bearing health assessment.

Day 5: Advanced Maintenance Strategies and Large-Sized Bearings

- Advanced maintenance practices: alignment, balancing, and precision installation.
- Challenges associated with large-sized bearings.
- Bearing mounting and dismounting techniques for large-sized bearings.
- Advanced maintenance strategies for large-sized bearings.
- Analyzing performance data for large-sized bearings.
- Developing specialized maintenance plans for large-sized bearings.
- Final assessment and certification.

Registration form on the Training Course: Advanced Bearing Maintenance and Service: Maximizing Performance and Reliability

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